

NATURAL RESOURCES CONSERVATION SERVICE CONSERVATION PRACTICE STANDARD

HEDGEROW PLANTING

(ft)

CODE 422

DEFINITION

Establishing a living fence of shrubs or trees in, across, or around a field.

PURPOSE

To delineate field boundaries, serve as fences, establish contour guidelines, provide wildlife food and cover, provide screens, or improve the landscape.

CONDITIONS WHERE PRACTICE APPLIES

Within, across, or around fields.

CRITERIA

GENERAL

Personnel are encouraged to work closely with NRCS state staff forester or biologist when utilizing this practice.

Plant Guide and Plant Information Sheets for individual species found in the USDA Plants Database (<http://plants.usda.gov>) will be utilized to supplement the material in this standard.

Where feasible natural succession should be utilized to establish hedgerows. If desired, supplemental planting of beneficial tree/shrub species should be added. An adequate nearby or adjacent seed source must be present when using natural succession to establish a hedgerow.

Methods used will be designed to protect the soil from erosion.

Planting rates will vary with intended purpose and species but shall be adequate to accomplish the planned purpose (see Appendix I).

The method of planting hedgerows shall include hand or machine planting techniques and be suited to achieving proper depths and placement of planting stock roots.

Selection of plants and spacing depend on purpose. Multiple rows should be used where feasible and plants should be staggered between rows. If necessary, spacing between rows should allow enough room for maintenance equipment.

Plant species used will be adapted to the site soil and moisture conditions (see Appendix I).

Native plant materials will be used whenever possible.

The planned plant species will be tolerant of any nutrient, pesticide, mine drainage or other chemical loading, where such loading can not be corrected.

For selection of species to be encouraged through natural succession or those that may be planted, refer to Tables 1 and 2 in Appendix I of this standard. Other species may also be suitable for use in hedgerow planting. Consult the NRCS state staff biologist or forester to determine suitability.

Site preparation, establishment, planting dates, methods and care in handling and

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planting of stock shall be in accordance with the criteria of WV Practice Standard 612, Tree/Shrub Establishment. In addition, specifications shown in WV Practice Standard 391, Riparian Forest Buffer-General Specifications for Care, Handling, Size, and Planting Requirements for Woody Planting Stock - may also be used.

Necessary site preparation and planting shall be done at a time and manner to ensure survival and growth of selected species. Only viable, high quality, and adapted planting stock will be used. Seed/stock viability will be determined prior to planting. Site preparation shall be sufficient for establishment and growth of selected species and performed in a manner that does not compromise the intended purpose.

Plant densities for trees and shrubs will depend on their potential height at 20 years of age. Heights may be estimated based on any of the following:

- 1) performance of the individual species on adjacent or nearby areas on similar sites under similar conditions;*
- 2) predetermined and documented heights using Section II of the Field Office Technical Guide;*
- 3) documented heights in the USDA Plants Database for a particular species and use;*
- 4) "20-year" and "mature" heights listed in Tables 1 and 2 of Appendix I of this standard;*
- 5) Information listed in WV Practice Standard 391, Riparian Forest Buffer Specifications.*

Barriers designed and installed according to WV Standards 472, Use Exclusion or 382, Fencing will be provided to protect plantings when livestock have access to the area. In most instances, other exclusionary measures will be necessary to protect plantings from browse by wildlife at least during the establishment period.

Additional Criteria for Screens or Barriers

If screening or tight thickets are desired, spacing of plants should be closer to the minimum range shown in Tables 1 and 2 of Appendix I or as indicated in the USDA Plant Sheet/Guide. Spacing should be adequate to allow crown closure at maturity for that particular species.

Species selection criteria shall be based upon improved aesthetics, seasonal foliage color, showy flowers, foliage texture, form, and branching habit. The layout and design shall be appropriate for the setting as determined by adjacent land uses and purpose.

Additional Criteria to Provide Wildlife Food and Cover

If wildlife food and/or cover are identified as the primary purpose, the hedgerow shall be at least 35 feet wide and shall consist of at least two tree and two shrub species.

Species suitable to provide wildlife food and/or cover will be selected from Tables 1 and 2 of Appendix I. Spacing will be as indicated in the tables or as specified in the USDA Plants Database Plant Guide/Sheet.

Individual habitat requirements may be obtained from those wildlife species listed in West Virginia Practice Standard 645, Wildlife Upland Habitat Management and the West Virginia Wildlife Habitat Evaluation Technique (WVWHET).

If fruit production is desired, spacing of plants should be closer to the maximum range shown in Tables 1 and 2 of Appendix I allowing for maximum crown development at maturity or as indicated in the corresponding USDA Plant Sheet/Guide.

If the hedgerow is intended to provide winter protective cover, at least 25 percent of the hedgerow shall contain evergreen sections at least 350 square feet in size. The sections shall be distributed within the hedgerow as needed to provide wildlife with ready access to winter cover. Refer to

the WVWHET for distribution and selection of evergreen and coniferous plants for various wildlife species.

Additional Criteria for Wildlife Corridors

Wildlife corridors (travel lanes) are linear plantings that provide cover and food for wildlife, while allowing ease and safety of movement through areas lacking these attributes. Hedgerows that are intended to serve primarily as wildlife corridors shall be a minimum of 50 feet wide. The height, width, and location of these corridors shall be designed so that they connect two or more habitat areas, and provide protective cover and dispersal networks for the desired animal species.

If planting is required, corridors should consist of a minimum of three staggered rows of trees and/or shrubs. Plant species should consist of both hard and soft mast producers where feasible.

Species suitable for wildlife corridors will be selected and spaced according to Tables 1 and 2 or as indicated in the USDA Plants Database Plant Guide/Sheet.

PLANS AND SPECIFICATIONS

Substrate material and site preparation necessary for proper establishment of the selected plant species shall be included in the design.

At a minimum the following will be identified in the conservation plan (as appropriate):

Purpose of Hedgerow

Size of Hedgerow

Length

Width

Field Location

Plant Species

Plant Guides

Plant Sheets

Spacing

Stock Size

Soil Amendments

Planting Method(s)

Method of Browse Control

Fencing Specifications

Tree Protector Specifications

Planting Dates

Operation and Maintenance Plan

Pruning and Thinning Schedule

Replacement Strategies

OPERATION AND MAINTENANCE

The following actions shall be carried out to insure that this practice functions as intended throughout its expected life. These actions include normal repetitive activities in the application and use of the practice (operation), and repair and upkeep of the practice (maintenance).

Where practical, management activities will be performed outside the primary nesting season March 15 - July 15. An exception may be for mowing or cultivation during the establishment period to control vegetative competition.

Pruning, thinning and removal of plants should be performed at least annually and timed so as not to interfere with the lifecycle of the plants or the intended purpose of the hedgerow.

Removal of diseased plants or limbs shall occur immediately upon detection.

Monitoring and replacement of dead trees or shrubs and control of undesirable vegetative competition will be continued until the hedgerow is fully functional.

The hedgerow will be continuously protected from fire, grazing and trampling. Cultivation for a year or two may be desirable if plant competition becomes a problem.

The hedgerow should be inspected after heavy storm events. Check for areas where water, ice or snow is concentrated and may cause damage to plants and take corrective actions as necessary.

Additional operation and maintenance requirements may be developed on a site-specific basis to assure performance of the practice as intended.

CONSIDERATIONS

Consider alternative water sources, such as tanks, ponds, wells, solar pumps, and ram pumps for livestock water supply needs if necessary.

Consider adding herbaceous plantings to the hedgerow to increase diversity or habitat functions.

Consider the effects of deer and small mammal browse when establishing vegetation.

Consider shading effects of tall hedgerows on adjacent structures and areas such as cropfields.

Consider associated insect, pest and disease problems when selecting tree and shrub species (e.g. cedar - apple rust)

Consider shade tolerance when selecting tree and shrub species to plant.

Consider the ease of establishment and availability of planting stock when selecting species to plant.

Consider the drainage class and soil type prior to plant selection.

Consider the effects on water budget, especially on volumes and rates of runoff, infiltration, evaporation and transpiration.

Consider the effects of adjacent land uses on the hedgerow.

Consider long term heights and effects on adjacent roads and utilities.

Consider the effects of noxious and invasive weeds on establishment and maintenance of hedgerows.

Consider wind direction when determining locations of plantings.

Consider the effects on erosion and the movement of sediment and soluble and sediment attached substances carried by runoff.

Consider the effects of snowcatch and melt on individual plants.

REFERENCES

USDA, NRCS. 2001. The PLANTS Database, Version 3.1 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

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Little, E.L., 1980., The Audubon Society Field Guide to North American Trees Eastern Region., Chanticleer Press Inc., New York, NY 10022

Hardin, J.W., White, F., 1991., Textbook of Dendrology, Covering the Important Forest Trees of the United States and Canada, McGraw-Hill, Inc., New York, NY 10022